

1 **ABSTRACT**

2 Methods and systems are described that assist media players in rendering
3 visualizations and synchronizing those visualizations with audio samples. In one
4 embodiment, visualizations are synchronized with an audio stream using a
5 technique that builds and maintains various data structures. Each data structure
6 can maintain data that is associated with a particular pre-processed audio sample.
7 The maintained data can include a timestamp that is associated with a time when
8 the audio sample is to be rendered. The maintained data can also include various
9 characteristic data that is associated with the audio stream. When a particular
10 audio sample is being rendered, its timestamp is used to locate a data structure
11 having characteristic data. The characteristic data is then used in a visualization
12 rendering process to render a visualization.
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